

CLAIMS

What is claimed is:

1. A method for testing a position of a substrate on a substrate support, comprising the steps of:

providing a control substrate having first and second alignment marks;

providing said control substrate in a homing position on the substrate support;

providing said control substrate in a test position on the substrate support; and

measuring a displacement between said first alignment mark at said homing position of said control substrate and said first alignment mark at said test position of said control substrate.

2. The method of claim 1 further comprising the step of measuring a second displacement between said second alignment mark at said homing position of said control substrate and said second alignment mark at said test position of said control substrate.

3. The method of claim 1 further comprising the step of determining a radial orientation shift of said control substrate between said control substrate at said homing position and said control substrate at said test position.

4. The method of claim 3 further comprising the step of measuring a second displacement between said second alignment mark at said homing position of said control substrate and said second alignment mark at said test position of said control substrate.

5. The method of claim 1 wherein said alignment marks are provided in substantially diametrically-opposed relationship to each other on said control substrate.

6. The method of claim 5 further comprising the step of measuring a second displacement between said second alignment mark at said homing position of said control substrate and said second alignment mark at said test position of said control substrate.

7. The method of claim 5 further comprising the step of determining a radial orientation shift of said control substrate between said control substrate at said homing position and said control substrate at said test position.

8. The method of claim 7 further comprising the step of measuring a second displacement between said second alignment mark at said homing position of said control substrate and said second alignment mark at said test position of said control substrate.

9. The method of claim 1 further comprising the steps of dividing said substrate support into a cartesian grid, assigning a first pair of homing coordinates for said first alignment mark and a second pair of homing coordinates for said second alignment mark on said cartesian grid when said control substrate is in said homing position, and assigning a first pair of test coordinates for said first alignment mark and a second pair of test coordinates for said second alignment mark when said control substrate is in said test position; and wherein said measuring a displacement comprises the steps of determining an X/Y shift between said first pair of homing coordinates and said first pair of test coordinates for said first alignment mark.

10. The method of claim 9 further comprising the step of measuring a second displacement between said second alignment mark at said homing position of said control substrate and said second alignment mark at said test position of said control substrate.

11. The method of claim 9 further comprising the step of determining a radial orientation shift of said control substrate between said control substrate at said homing position and said control substrate at said test position.

12. The method of claim 9 wherein said alignment marks are provided in substantially diametrically-opposed relationship to each other on said control substrate.

13. A method for testing a position of a substrate on a substrate support, comprising the steps of:

providing a control substrate having first and second alignment marks;

providing said control substrate in a homing position on the substrate support;

providing said control substrate in a test position on the substrate support;

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measuring a displacement between said first alignment mark at said homing position of said control substrate and said first alignment mark at said test position of said control substrate; and

comparing said displacement to a deviation range of acceptable displacements.

14. The method of claim 13 further comprising the steps of determining a radial orientation shift of said control substrate between said control substrate at said homing position and said control substrate at said test position and comparing said radial orientation shift to a deviation range of acceptable radial orientation shifts.

15. The method of claim 13 wherein said alignment marks are provided in substantially diametrically-opposed relationship to each other on said control substrate.

16. The method of claim 13 further comprising the steps of dividing said substrate support into a cartesian grid, assigning a first pair of homing coordinates for said first alignment mark and a second pair of homing coordinates for said second alignment mark on said cartesian grid when said control substrate is in said homing position, and assigning a first pair of test coordinates for said first alignment mark and a second pair of test coordinates for said second alignment mark when said control substrate is in said test position; and wherein said measuring a displacement comprises the steps of determining an X/Y shift between said first pair of homing coordinates and said first pair of test coordinates for said first alignment mark.

17. A method for re-calibrating a homing position of a substrate on a substrate support, comprising the steps of:

providing a control substrate in said homing position on said substrate support;

providing said control substrate in a test position on said substrate support;

determining a substrate center shift between a center of said control substrate at said homing position and said center of said control substrate at said test position; and

re-calibrating said homing position using said substrate center shift.

18. The method of claim 17 further comprising the steps of dividing said substrate support into a cartesian grid, assigning a pair of homing center position coordinates to said center of said control substrate at said homing position of said control substrate, and assigning a pair of test center position coordinates to said center of said control substrate at said test position of said control substrate; and wherein said substrate center shift is determined using said pair of homing center position coordinates and said test center position coordinates.

19. The method of claim 18 further comprising the steps of providing first and second alignment marks on said control substrate, assigning a first pair of homing coordinates for said first alignment mark and a second pair of homing coordinates for said second alignment mark on said cartesian grid when said control substrate is in said homing position, and assigning a first pair of test coordinates for said first alignment mark and a second pair of test coordinates for said second alignment mark when said control substrate is in said test position; and wherein said test center position coordinates are determined using said first pair of homing coordinates, said first pair of test coordinates, said second pair of homing coordinates, and said second pair of test coordinates.

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20. The method of claim 19 further comprising the step of determining a radial orientation shift of said control substrate between said control substrate at said homing position and said control substrate at said test position and wherein said test center position coordinates are determined using said first pair of homing coordinates, said first pair of test coordinates, said second pair of homing coordinates, said second pair of test coordinates and said radial orientation shift.